



DATA VALIDATION REPORT

Gold King Mine Follow-Up Monitoring

SAMPLE DELIVERY GROUP: 680-126426-1

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014



I. INTRODUCTION

Task Order Title: Gold King Mine Follow-Up Monitoring
Project No.: 20408.012.001.0285.00
Sample Delivery Group: 680-126426-1
EPA Project Manager: Steve Merritt
Weston Project Manager: Mark Blanchard
TDD No.: 0001/1510-02
Matrix: Solid/Water
QC Level: Stage 2A
No. of Samples: 8
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica - Denver

Table 1. Sample Identification

<i>Location ID</i>	<i>Lab Sample Name</i>	<i>Matrix Type</i>	<i>Collection Date</i>	<i>Method</i>
CC18_061016_1215	680-126426-4	Water	6/10/16 12:15 PM	200.7, 200.8, 245.1
CC20_061016	680-126426-5	Water	6/10/16 12:35 PM	200.7, 200.8, 245.1
GS_BAGDRYEXISTING_N_061016_1315	680-126426-6	Solid	6/10/16 1:15 PM	6010C, 6020A, 7471A
GS_BAGDRYEXISTING_N_Dup_061016_1320	680-126426-8	Solid	6/10/16 1:20 PM	6010C, 6020A, 7471A
GS_BAGDRYEXISTING_S_061016_1325	680-126426-7	Solid	6/10/16 1:25 PM	6010C, 6020A, 7471A
GSTI_061016_1145	680-126426-2	Water	6/10/16 11:45 AM	200.7, 200.8, 245.1
GSTI_Dup_061016_1150	680-126426-3	Water	6/10/16 11:50 AM	200.7, 200.8, 245.1
GSTO_061016_1035	680-126426-1	Water	6/10/16 10:35 AM	200.7, 200.8, 245.1

II. Sample Management

The samples were received within the temperature limits of 4°C ±2°C. The samples were received intact, on ice and properly preserved. The chains-of-custody (COCs) were appropriately signed and dated by field and laboratory personnel, except as noted below. The presence or absence of custody seals on the cooler was not specifically noted.

The following issues were noted:

- Corrections made to the COC were made by overwriting and/or striking through the original entry. The corrections were not initialed or dated.
- The date relinquished by the sampler (6/13/16) predated the date received by FedEx (6/10/16). This date and time also appeared to have been overwritten by the sampler. The data were not qualified as this appeared to be an error on the sampler's part.

**Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.



Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

**Qualification Code Reference Table**

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.



Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



III. Method Analyses

A. Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, 200.7, 200.8, 245.1, 6010C, 6020A, 7471A—Metals and Mercury

Reviewed By: M. Hilchey

Date Reviewed: August 30, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment, Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods*, *Program Statement of Work for Inorganic Superfund Methods*, *EPA Methods 200.7, 200.8, 245.1, 6010C, 6020B, and 7471A* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2010).

- Holding Times: The analytical holding times, 28 days for mercury, and six months for the remaining metals, were met.
- Analytical Method Blanks: No target analytes were reported in the method blanks with the exceptions of iron (129 mg/Kg), chromium (0.223 mg/Kg) and manganese (0.210 mg/Kg) in the soil method blank. However these were insufficient to qualify site sample results.
- Laboratory Control Samples (LCS): The recoveries were within the laboratory control limits of 75-125% for method 6020A, 85-115% for methods 200.7, 200.8 and 245.1, and 80-120% for methods 7471A and 6010C.
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on a sample from this SDG. Method precision was evaluated based on matrix spike/matrix spike duplicate results.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed on the samples noted in the table below from this SDG. Although total and dissolved analyte results were reported for MS/MSD analyses for methods 200.7, 200.8, and 245.1, these QC samples were not filtered prior to digestion. Therefore MS/MSD results for these methods were assessed for total analyte results only.

Parent Sample	Method
GSTO_061016_1035	200.7, 200.8 total
GSTI_061016_1145	245.1 total
GS_BAGDRYEXISTING_N_061016_1315	6010C, 6020A, 7471A



Results were not assessed when the native concentration was more than 4× the spike amount. The recoveries were within the laboratory control limits of 75-125% for methods 200.7, 6010C and 6020A, 80-120% for method 7471, and 70-130% for methods 200.8 and 245.1 except as noted in the table below. All associated detected sample results were qualified as estimated (J for inconsistent recoveries and J+ for recoveries above the QC limit). The RPDs were ≤20% for all target analytes except mercury by 7471A (33%), and chromium (60%) and vanadium (30%) by 6020A. All associated sample results were qualified as estimated (J).

Analyte	MS/MSD %R	Affected samples
potassium (total)	140%/136%	GSTO_061016_1035, GSTI_061016_1145, GSTI_Dup_061016_1150, CC18_061016_1215, CC20_061016
potassium	184%/145%	GS_BAGDRYEXISTING_N_061016_1315, GS_BAGDRYEXISTING_S_061016_1325, GS_BAGDRYEXISTING_N_Dup_061016_1320
calcium	144%/151%	
chromium	261%	
molybdenum	128%	
selenium	126%	
silver	126%	
vanadium	264%	
mercury	48%/141%	

- Post Digestion Spike (PDS): Post digestion spike analyses were not performed in this SDG.
- Serial Dilution: Serial dilution analyses were not performed in this SDG.
- Field QC Samples: MEC^x evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^x used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:
 - Field Blanks and Equipment Rinsates: Field blank or equipment blank samples were not identified for this SDG.
 - Field Duplicates: Samples GSTI_061016_1145/ GSTI_Dup_061016_1150 and GS_BAGDRYEXISTING_N_061016_1315/GS_BAGDRYEXISTING_N_DUP_061016_1320 were identified as field duplicate pairs. All RPDs were below the reasonable control limits of ≤30% for aqueous samples and ≤50% for solid samples with the exceptions of antimony (53%) and arsenic (90%) for the solid field duplicates. The associated results for sediment duplicate pair



GS_BAGDRYEXISTING_N_061016_1315/GS_BAGDRYEXISTING_N_Dup_0610
16_1320 were qualified as estimated (J).

Validated Sample Result Forms: 680-126426-1

Analysis Method 200.7 Rev 4.4

Sample Name GSTO_061016_1035

Matrix Type: Water

Lab Sample Name: 680-126426-1

Sample Date: 6/10/2016 10:35:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	860	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	440	200	24	ug/L			
Calcium	T	7440-70-2	830000	5000	250	ug/L			
Calcium, Dissolved	D	7440-70-2	800000	5000	250	ug/L			
Iron	T	7439-89-6	1900	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	29000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	29000	500	33	ug/L			
Potassium	T	7440-09-7	2000	1000	17	ug/L	F1	J+	Q
Potassium, Dissolved	D	7440-09-7	2100	1000	17	ug/L			
Sodium	T	7440-23-5	96000	10000	4800	ug/L			
Sodium, Dissolved	D	7440-23-5	94000	10000	4800	ug/L			

Sample Name GSTI_061016_1145

Matrix Type: Water

Lab Sample Name: 680-126426-2

Sample Date: 6/10/2016 11:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	64000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	64000	200	24	ug/L			
Calcium	T	7440-70-2	320000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	320000	500	25	ug/L			
Iron	T	7439-89-6	290000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	280000	50	17	ug/L			
Magnesium	T	7439-95-4	37000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	37000	500	33	ug/L			
Potassium	T	7440-09-7	1600	1000	17	ug/L		J+	Q
Potassium, Dissolved	D	7440-09-7	1600	1000	17	ug/L			
Sodium	T	7440-23-5	5200	5000	2400	ug/L			
Sodium, Dissolved	D	7440-23-5	4300	5000	2400	ug/L	J	J	

Analysis Method 200.7 Rev 4.4

Sample Name		GSTI_Dup_061016_1150					Matrix Type: Water		
Lab Sample Name:		680-126426-3		Sample Date:		6/10/2016 11:50:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	64000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	64000	200	24	ug/L			
Calcium	T	7440-70-2	320000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	320000	500	25	ug/L			
Iron	T	7439-89-6	280000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	280000	50	17	ug/L			
Magnesium	T	7439-95-4	36000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	37000	500	33	ug/L			
Potassium	T	7440-09-7	1600	1000	17	ug/L		J+	Q
Potassium, Dissolved	D	7440-09-7	1600	1000	17	ug/L			
Sodium	T	7440-23-5	4800	5000	2400	ug/L	J	J	
Sodium, Dissolved	D	7440-23-5	4300	5000	2400	ug/L	J	J	

Sample Name		CC18_061016_1215				Matrix Type: Water			
Lab Sample Name:		680-126426-4		Sample Date:		6/10/2016 12:15:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	1500	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	1100	200	24	ug/L			
Calcium	T	7440-70-2	31000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	30000	500	25	ug/L			
Iron	T	7439-89-6	4100	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	3000	50	17	ug/L			
Magnesium	T	7439-95-4	3000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	2900	500	33	ug/L			
Potassium	T	7440-09-7	560	1000	17	ug/L	J	J+	Q
Potassium, Dissolved	D	7440-09-7	430	1000	17	ug/L	J	J	
Sodium	T	7440-23-5	1600	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	1600	1000	480	ug/L			

Sample Name		CC20_061016					Matrix Type: Water		
Lab Sample Name:		680-126426-5		Sample Date:		6/10/2016 12:35:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	1300	200	24	ug/L			

Analysis Method 200.7 Rev 4.4

Aluminum, Dissolved	D	7429-90-5	880	200	24	ug/L			
Calcium	T	7440-70-2	44000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	43000	500	25	ug/L			
Iron	T	7439-89-6	3100	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	2100	50	17	ug/L			
Magnesium	T	7439-95-4	3400	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	3300	500	33	ug/L			
Potassium	T	7440-09-7	600	1000	17	ug/L	J	J+	Q
Potassium, Dissolved	D	7440-09-7	450	1000	17	ug/L	J	J	
Sodium	T	7440-23-5	2400	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	2400	1000	480	ug/L			

Analysis Method 200.8

Sample Name GSTO_061016_1035 **Matrix Type:** Water

Lab Sample Name: 680-126426-1 **Sample Date:** 6/10/2016 10:35:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	1.7	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	8.9	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	9	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	3.9	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	2.6	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	5.3	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	4.4	0.4	0.12	ug/L			
Copper	T	7440-50-8	69	5	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	2.1	5	0.5	ug/L	J	J	
Lead	T	7439-92-1	0.2	0.3	0.06	ug/L	J	J	
Lead, Dissolved	D	7439-92-1	0.06	0.3	0.06	ug/L	U	U	
Manganese	T	7439-96-5	6100	25	12	ug/L			
Manganese, Dissolved	D	7439-96-5	6000	50	24	ug/L			
Molybdenum	T	7439-98-7	3.2	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	3.1	1	0.45	ug/L			
Nickel	T	7440-02-0	8.2	5	0.4	ug/L			

Analysis Method 200.8

Nickel, Dissolved	D	7440-02-0	8.9	5	0.4	ug/L		
Selenium	T	7782-49-2	0.75	2	0.58	ug/L	J	J
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U
Thallium	T	7440-28-0	0.29	0.2	0.1	ug/L		
Thallium, Dissolved	D	7440-28-0	0.28	0.2	0.1	ug/L		
Vanadium	T	7440-62-2	0.69	1	0.3	ug/L	J	J
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	300	20	2.8	ug/L		
Zinc, Dissolved	D	7440-66-6	33	20	2.8	ug/L		

Sample Name GSTI_061016_1145 **Matrix Type:** Water

Lab Sample Name: 680-126426-2 **Sample Date:** 6/10/2016 11:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	8	20	8	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	8	20	8	ug/L	U	U	
Arsenic	T	7440-38-2	200	20	7.4	ug/L			
Arsenic, Dissolved	D	7440-38-2	190	20	7.4	ug/L			
Barium	T	7440-39-3	8.4	40	2.8	ug/L	J	J	
Barium, Dissolved	D	7440-39-3	8.1	40	2.8	ug/L	J	J	
Beryllium	T	7440-41-7	6.9	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	6.7	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	170	10	0.86	ug/L			
Cadmium, Dissolved	D	7440-43-9	170	10	0.86	ug/L			
Chromium	T	7440-47-3	13	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	13	2	1	ug/L			
Cobalt	T	7440-48-4	130	8	2.4	ug/L			
Cobalt, Dissolved	D	7440-48-4	140	8	2.4	ug/L			
Copper	T	7440-50-8	11000	100	10	ug/L			
Copper, Dissolved	D	7440-50-8	11000	100	10	ug/L			
Lead	T	7439-92-1	20	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	18	0.3	0.06	ug/L			
Manganese	T	7439-96-5	24000	50	24	ug/L			
Manganese, Dissolved	D	7439-96-5	24000	50	24	ug/L			
Molybdenum	T	7439-98-7	13	20	9	ug/L	J	J	
Molybdenum, Dissolved	D	7439-98-7	13	20	9	ug/L	J	J	
Nickel	T	7440-02-0	71	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	69	5	0.4	ug/L			
Selenium	T	7782-49-2	6.1	2	0.58	ug/L			

Analysis Method 200.8

Selenium, Dissolved	D	7782-49-2	6.3	2	0.58	ug/L		
Silver	T	7440-22-4	2	20	2	ug/L	U	U
Silver, Dissolved	D	7440-22-4	2	20	2	ug/L	U	U
Thallium	T	7440-28-0	2	4	2	ug/L	U	U
Thallium, Dissolved	D	7440-28-0	2	4	2	ug/L	U	U
Vanadium	T	7440-62-2	64	20	6	ug/L		
Vanadium, Dissolved	D	7440-62-2	63	20	6	ug/L		
Zinc	T	7440-66-6	41000	400	56	ug/L		
Zinc, Dissolved	D	7440-66-6	41000	400	56	ug/L		

Sample Name GSTI_Dup_061016_1150

Matrix Type: Water

Lab Sample Name: 680-126426-3

Sample Date: 6/10/2016 11:50:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	8	20	8	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	8	20	8	ug/L	U	U	
Arsenic	T	7440-38-2	200	20	7.4	ug/L			
Arsenic, Dissolved	D	7440-38-2	190	20	7.4	ug/L			
Barium	T	7440-39-3	7.7	40	2.8	ug/L	J	J	
Barium, Dissolved	D	7440-39-3	8.1	40	2.8	ug/L	J	J	
Beryllium	T	7440-41-7	6.9	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	6.7	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	170	10	0.86	ug/L			
Cadmium, Dissolved	D	7440-43-9	170	10	0.86	ug/L			
Chromium	T	7440-47-3	13	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	13	2	1	ug/L			
Cobalt	T	7440-48-4	130	8	2.4	ug/L			
Cobalt, Dissolved	D	7440-48-4	130	8	2.4	ug/L			
Copper	T	7440-50-8	11000	100	10	ug/L			
Copper, Dissolved	D	7440-50-8	11000	100	10	ug/L			
Lead	T	7439-92-1	20	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	18	0.3	0.06	ug/L			
Manganese	T	7439-96-5	24000	50	24	ug/L			
Manganese, Dissolved	D	7439-96-5	24000	50	24	ug/L			
Molybdenum	T	7439-98-7	13	20	9	ug/L	J	J	
Molybdenum, Dissolved	D	7439-98-7	12	20	9	ug/L	J	J	
Nickel	T	7440-02-0	71	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	70	5	0.4	ug/L			
Selenium	T	7782-49-2	6.2	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	5.8	2	0.58	ug/L			
Silver	T	7440-22-4	2	20	2	ug/L	U	U	

Analysis Method 200.8

Silver, Dissolved	D	7440-22-4	2	20	2	ug/L	U	U
Thallium	T	7440-28-0	2	4	2	ug/L	U	U
Thallium, Dissolved	D	7440-28-0	2	4	2	ug/L	U	U
Vanadium	T	7440-62-2	61	20	6	ug/L		
Vanadium, Dissolved	D	7440-62-2	61	20	6	ug/L		
Zinc	T	7440-66-6	41000	400	56	ug/L		
Zinc, Dissolved	D	7440-66-6	41000	400	56	ug/L		

Sample Name CC18_061016_1215

Matrix Type: Water

Lab Sample Name: 680-126426-4

Sample Date: 6/10/2016 12:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	1.3	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	20	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	16	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.38	0.4	0.15	ug/L	J	J	
Beryllium, Dissolved	D	7440-41-7	0.33	0.4	0.15	ug/L	J	J	
Cadmium	T	7440-43-9	4.9	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	4.9	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	4.7	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	4.5	0.4	0.12	ug/L			
Copper	T	7440-50-8	150	5	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	140	5	0.5	ug/L			
Lead	T	7439-92-1	15	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	6.2	0.3	0.06	ug/L			
Manganese	T	7439-96-5	1700	2.5	1.2	ug/L			
Manganese, Dissolved	D	7439-96-5	1700	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	0.45	1	0.45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	0.45	1	0.45	ug/L	U	U	
Nickel	T	7440-02-0	4.3	5	0.4	ug/L	J	J	
Nickel, Dissolved	D	7440-02-0	4.4	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	

Analysis Method 200.8

Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U
Vanadium	T	7440-62-2	0.65	1	0.3	ug/L	J	J
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	1300	20	2.8	ug/L		
Zinc, Dissolved	D	7440-66-6	1300	20	2.8	ug/L		

Sample Name CC20_061016

Matrix Type: Water

Lab Sample Name: 680-126426-5

Sample Date: 6/10/2016 12:35:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.76	1	0.37	ug/L	J	J	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	21	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	16	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.32	0.4	0.15	ug/L	J	J	
Beryllium, Dissolved	D	7440-41-7	0.33	0.4	0.15	ug/L	J	J	
Cadmium	T	7440-43-9	4.4	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	4.3	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	4.3	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	4.2	0.4	0.12	ug/L			
Copper	T	7440-50-8	85	5	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	79	5	0.5	ug/L			
Lead	T	7439-92-1	34	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	12	0.3	0.06	ug/L			
Manganese	T	7439-96-5	1900	2.5	1.2	ug/L			
Manganese, Dissolved	D	7439-96-5	1900	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	0.45	1	0.45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	0.45	1	0.45	ug/L	U	U	
Nickel	T	7440-02-0	4	5	0.4	ug/L	J	J	
Nickel, Dissolved	D	7440-02-0	4	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	J	J	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	0.65	1	0.3	ug/L	J	J	

Analysis Method 200.8

Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	1200	20	2.8	ug/L			
Zinc, Dissolved	D	7440-66-6	1200	20	2.8	ug/L			

Analysis Method 245.1

Sample Name	GSTO_061016_1035						Matrix Type:	Water	
--------------------	------------------	--	--	--	--	--	---------------------	-------	--

Lab Sample Name: 680-126426-1 **Sample Date:** 6/10/2016 10:35:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name	GSTI_061016_1145						Matrix Type:	Water	
--------------------	------------------	--	--	--	--	--	---------------------	-------	--

Lab Sample Name: 680-126426-2 **Sample Date:** 6/10/2016 11:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name	GSTI_Dup_061016_1150						Matrix Type:	Water	
--------------------	----------------------	--	--	--	--	--	---------------------	-------	--

Lab Sample Name: 680-126426-3 **Sample Date:** 6/10/2016 11:50:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name	CC18_061016_1215						Matrix Type:	Water	
--------------------	------------------	--	--	--	--	--	---------------------	-------	--

Lab Sample Name: 680-126426-4 **Sample Date:** 6/10/2016 12:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name	CC20_061016						Matrix Type:	Water	
--------------------	-------------	--	--	--	--	--	---------------------	-------	--

Lab Sample Name: 680-126426-5 **Sample Date:** 6/10/2016 12:35:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 6010C

Sample Name		GS_BAGDRYEXISTING_N_061016_1315					Matrix Type: Solid		
Lab Sample Name:		680-126426-6	Sample Date:		6/10/2016 1:15:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	9900	19	3	mg/Kg			
Calcium	T	7440-70-2	1000	49	5	mg/Kg	F1	J+	Q
Iron	T	7439-89-6	47000	19	5.1	mg/Kg	F2 B		
Magnesium	T	7439-95-4	6300	49	8.6	mg/Kg			
Potassium	T	7440-09-7	1000	97	2.4	mg/Kg	F1	J+	Q
Sodium	T	7440-23-5	47	190	47	mg/Kg	U	U	

Sample Name		GS_BAGDRYEXISTING_S_061016_1325					Matrix Type: Solid		
Lab Sample Name:		680-126426-7	Sample Date:		6/10/2016 1:25:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	10000	19	3	mg/Kg			
Calcium	T	7440-70-2	1200	48	5	mg/Kg		J+	Q
Iron	T	7439-89-6	53000	19	5.1	mg/Kg	B		
Magnesium	T	7439-95-4	5100	48	8.5	mg/Kg			
Potassium	T	7440-09-7	1100	96	2.4	mg/Kg		J+	Q
Sodium	T	7440-23-5	46	190	46	mg/Kg	U	U	

Sample Name		GS_BAGDRYEXISTING_N_Dup_061016_1320					Matrix Type: Solid		
Lab Sample Name:		680-126426-8	Sample Date:		6/10/2016 1:20:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	10000	19	3	mg/Kg			
Calcium	T	7440-70-2	1300	48	5	mg/Kg		J+	Q
Iron	T	7439-89-6	36000	19	5.1	mg/Kg	B		
Magnesium	T	7439-95-4	5100	48	8.6	mg/Kg			
Potassium	T	7440-09-7	1300	97	2.4	mg/Kg		J+	Q
Sodium	T	7440-23-5	46	190	46	mg/Kg	U	U	

Analysis Method 6020A

Sample Name		GS_BAGDRYEXISTING_N_061016_1315					Matrix Type: Solid		
Lab Sample Name:		680-126426-6	Sample Date:		6/10/2016 1:15:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	1.8	0.97	0.097	mg/Kg		J	F1
Arsenic	T	7440-38-2	58	0.29	0.097	mg/Kg		J	F1
Barium	T	7440-39-3	95	0.49	0.058	mg/Kg			
Beryllium	T	7440-41-7	0.6	0.049	0.015	mg/Kg			

Analysis Method 6020A

Cadmium	T	7440-43-9	0.91	0.049	0.015	mg/Kg			
Chromium	T	7440-47-3	6.6	0.97	0.11	mg/Kg	B F1 F2	J+	Q,Q1
Cobalt	T	7440-48-4	4.4	0.049	0.0097	mg/Kg			
Copper	T	7440-50-8	74	0.49	0.13	mg/Kg	F2		
Lead	T	7439-92-1	530	0.19	0.049	mg/Kg			
Manganese	T	7439-96-5	820	0.97	0.12	mg/Kg	B		
Molybdenum	T	7439-98-7	3.3	0.97	0.078	mg/Kg	F1	J+	Q
Nickel	T	7440-02-0	3.9	0.97	0.25	mg/Kg			
Selenium	T	7782-49-2	4.4	0.49	0.097	mg/Kg	F1	J+	Q
Silver	T	7440-22-4	1.5	0.097	0.0097	mg/Kg	F1	J+	Q
Thallium	T	7440-28-0	0.28	0.097	0.049	mg/Kg			
Vanadium	T	7440-62-2	31	0.49	0.26	mg/Kg	F1 F2	J+	Q,Q1
Zinc	T	7440-66-6	300	1.9	0.97	mg/Kg			

Sample Name GS_BAGDRYEXISTING_S_061016_1325 **Matrix Type:** Solid

Lab Sample Name: 680-126426-7 **Sample Date:** 6/10/2016 1:25:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	2.3	0.94	0.094	mg/Kg			
Arsenic	T	7440-38-2	23	0.28	0.094	mg/Kg			
Barium	T	7440-39-3	130	0.47	0.056	mg/Kg			
Beryllium	T	7440-41-7	0.53	0.047	0.014	mg/Kg			
Cadmium	T	7440-43-9	0.86	0.047	0.014	mg/Kg			
Chromium	T	7440-47-3	7.3	0.94	0.1	mg/Kg	B	J+	Q,Q1
Cobalt	T	7440-48-4	6.8	0.047	0.0094	mg/Kg			
Copper	T	7440-50-8	85	0.47	0.12	mg/Kg			
Lead	T	7439-92-1	640	0.19	0.047	mg/Kg			
Manganese	T	7439-96-5	1100	0.94	0.11	mg/Kg	B		
Molybdenum	T	7439-98-7	4.8	0.94	0.075	mg/Kg		J+	Q
Nickel	T	7440-02-0	3.5	0.94	0.24	mg/Kg			
Selenium	T	7782-49-2	5.7	0.47	0.094	mg/Kg		J+	Q
Silver	T	7440-22-4	2.1	0.094	0.0094	mg/Kg		J+	Q
Thallium	T	7440-28-0	0.32	0.094	0.047	mg/Kg			
Vanadium	T	7440-62-2	35	0.47	0.25	mg/Kg		J+	Q,Q1
Zinc	T	7440-66-6	270	1.9	0.94	mg/Kg			

Sample Name GS_BAGDRYEXISTING_N_Dup_061016_1320 **Matrix Type:** Solid

Lab Sample Name: 680-126426-8 **Sample Date:** 6/10/2016 1:20:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	3.1	0.94	0.094	mg/Kg		J	F1
Arsenic	T	7440-38-2	22	0.28	0.094	mg/Kg		J	F1
Barium	T	7440-39-3	140	0.47	0.056	mg/Kg			

Analysis Method 6020A

Beryllium	T	7440-41-7	0.56	0.047	0.014	mg/Kg			
Cadmium	T	7440-43-9	1.1	0.047	0.014	mg/Kg			
Chromium	T	7440-47-3	8.2	0.94	0.1	mg/Kg	B	J+	Q,Q1
Cobalt	T	7440-48-4	4.8	0.047	0.0094	mg/Kg			
Copper	T	7440-50-8	84	0.47	0.12	mg/Kg			
Lead	T	7439-92-1	750	0.19	0.047	mg/Kg			
Manganese	T	7439-96-5	940	0.94	0.11	mg/Kg	B		
Molybdenum	T	7439-98-7	4.7	0.94	0.075	mg/Kg		J+	Q
Nickel	T	7440-02-0	5.9	0.94	0.24	mg/Kg			
Selenium	T	7782-49-2	5.9	0.47	0.094	mg/Kg		J+	Q
Silver	T	7440-22-4	2.1	0.094	0.0094	mg/Kg		J+	Q
Thallium	T	7440-28-0	0.36	0.094	0.047	mg/Kg			
Vanadium	T	7440-62-2	33	0.47	0.25	mg/Kg		J+	Q,Q1
Zinc	T	7440-66-6	360	1.9	0.94	mg/Kg			

Analysis Method 7471A

Sample Name GS_BAGDRYEXISTING_N_061016_1315 **Matrix Type:** Solid
Lab Sample Name: 680-126426-6 **Sample Date:** 6/10/2016 1:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.19	0.02	0.0081	mg/Kg	F1 F2	J	Q,Q1

Sample Name GS_BAGDRYEXISTING_S_061016_1325 **Matrix Type:** Solid
Lab Sample Name: 680-126426-7 **Sample Date:** 6/10/2016 1:25:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.46	0.021	0.0084	mg/Kg		J	Q,Q1

Sample Name GS_BAGDRYEXISTING_N_Dup_061016_1320 **Matrix Type:** Solid
Lab Sample Name: 680-126426-8 **Sample Date:** 6/10/2016 1:20:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.13	0.019	0.0076	mg/Kg		J	Q,Q1